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ABSTRACT

This paper traces the development of methods for determining students' qualifications for the baccalaureate. In the 1700s and into the 1800s, students stood comprehensive examinations, which were often oral and public. Later in the 1800s, comprehensive examinations were written and reviewed by faculty, without involving public review. At the end of the 1800s and the beginning of the 1900s, the Carnegie unit became the basis for granting high school diplomas and credit hours for the baccalaureate. The credit system has made the university a banking system, using time as the consistent determining factor in granting the baccalaureate. In the future, it may become necessary to find a way to graduate students based on their achievement, rather than the time spent. However, at present credits provide the basis for degree qualification and they are the basis for fiscal management in higher education. Without the credit system, or something like it, the U.S. higher education system could not manage its enormous migration of students. (Contains 18 references.) (SLD)

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Brief History of American Academic Credit System: A Recipe for Incoherence in Student Learning

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September 2002

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BRIEF HISTORY OF AMERICAN ACADEMIC CREDIT SYSTEM:
A Recipe for Incoherence in Student Learning

John Harris
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Over the last three centuries, the methods of determining students' qualifications for the baccalaureate have taken the following general path.

Comprehensive, Public Orals Through the 1700's and into the 1800's, students stood comprehensive examinations, which were often oral and public. The University of Georgia's, charted in 1785, examinations for baccalaureates illustrates this approach.

> Examinations were based on **the assumption that students had been amassing a sum of knowledge which tended to unify and coalesce into a related whole – not filling little compartments from textbooks unrelated and to be speedily forgotten when the crisis had been successfully passed**. Therefore, the examinations at the close of the first two terms were mere harbingers of the searching inventory to be taken a the commencement times "on all the studies of the preceding year." The senior examination was guarded with particular care because the Bachelor of Arts degree was given those who were successful. **This examination was "general one, upon all the studies of both the two last years and many of the preceding years,"** or as the rules ran, it should be "rigid, and extend to the whole of collegiate literature" and only those found "well skilled in the liberal arts and sciences" should be given degrees. Following their vacation the seniors devoted their whole time to reviewing their past four years' work against the day of their examination, which was held four to six weeks before commencement in or that they might the opportunity to enjoy the beauties of an untrammeled existence before the greatest occasion in college life came – commencement.[1] (Emphasis added.)

While at least 200 years old, the rationale for such an examination resonates with today's concerns for evidence of effectiveness in fulfilling institutional missions.

> "The test of the pudding is the taste thereof" is a saw honored with age and truth. Examination times were tasting times and **this tasting should be done by more than the cooks only**. In the original charter a board of visitors was established "to see that the interest of this institution is carried into effect," but its duties were so intangible that it never got out of the charter until someone discovered that attending examinations would be a befitting work for such a board. It first took on flesh and blood in 1811 when three trustees were named as visitors. Later the number was increased to fifteen and membership was not limited to the trustees. The most distinguished men in the state were generally named and urged to attend the senior examinations as well as others .... The lists were not closed against any persons who wanted to attend. In 1825 President Waddel noted with pride that "the Governor and many trustees" attended the junior class examination. In 1834 the University announced that the senior examinations would begin on June 23 "and continue from day to day until the Board of Visitors are (sic) are satisfied." It added, "the College Faculty would be gratified by the attendance of Parents

[1] E. M. Coulter, *College Life in the Old South* (Athens: University of Georgia Press, 1951, 52. As quoted in "Baccalaureate Requirements: Attainments or Exposures?," *Educational Record*, American Council on Education, Winter, 1972, 62

> and Guardians, and literary gentlemen who may have it in their power to attend."[2] (Emphasis added.)

According to Brubacher and Rudy, the Georgia practice was common in the colonial colleges.

> The principal method of testing student achievement in the early colonial college took the form of a public exhibition. On this occasion the president and tutors, together with the governing board and such gentlemen of liberal education as might be interested, constituted a sort of court or board of examiners. On one such occasion Ezra Stiles of Yale noted as many as twenty taking part. Students were called up singly and each examined orally. This display of learning made quite a public appeal and remained popular till well into the nineteenth century.[3]

Comprehensive, Internal, Written Exams Later in the 1800's, comprehensive were written and reviewed by faculty, not involving public review. As Brubacher and Rudy point out, oral comprehensives involving outside examiners became discredited for two reasons. First, the marks for a given performance by different examiners varied widely. As we know, validity depends on reliability. Second, it became somewhat obvious that tutors were asking leading or easy questions so that their students would do well.[4] .

> By the middle of the nineteenth century the public exhibition was rapidly giving way to the practice of written examinations. The obvious advantage which this form held over the oral consisted in having all examinees react to the same set of questions. The college missed the public advertisement of the exhibition, but in its place it could boast of much greater equity in the results of its testing. But even written examinations were not without their critics. The critics, however, were not so much the advocates of the public exhibition as the defenders of the recitation. The daily recitation with carefully recorded grades was an examination itself, they thought, and, when grades were averaged, more unerring in its results than those given only annually or even semiannually. **Proponents of the written, longer term examination pointed out in reply that reliance on the daily recitation caused the student to study subjects piecemeal, thereby losing the over-all grasp of material engendered by the newer examining procedure.** **President Eliot** had a criticism too, but his was constructive and one to be pressed frequently in the twentieth century. He **thought it a mistake to join the teaching and examining function in the same person because, while such a practice might provide a measure of the learning done, it afforded no satisfactory measure of teaching.**[5]

Modular Course Grades and Time-Based Units At the end of the 1800's and the beginning of 1900's, the Carnegie unit became the basis for granting high school diplomas and credit hours for the baccalaureate. In the late 1800's, Harvard's Eliot pushed for comprehensive examinations similar to those he observed at

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[2] Ibid., 52-53.
[3] John S. Brubacher and Willis Rudy. Higher Education in Transition, New York: Harper & Row, Publishers, 1968, 92.
[4] Ibid., 92-93.
[5] Ibid., 93.

Oxford, the Carnegie Unit as a measure of higher school attainment, and elective courses in the Harvard curriculum. He succeed in the last two but not the first. The elective system obviously works against common comprehensive examinations but for a credit hour system. Kreplin summarized their mutual reinforcement as follows:

> The emergence of the credit-hour system apparently coincided with Charles W. Eliot's introduction of electives at Harvard College in 1869. Following Harvard's lead, the notion of electives rapidly spread both within disciplines and among institutions, and this expansion was paralleled by the introduction of quantitative course measurements.[6]

Dietrich Gerhard identified two phases in the spread of the system of course credits that were stimulated by the introduction the elective system following 1870.

> From now on in the growth of the credit system two phases can be distinguished: an earlier one in the which the colleges start to measure the teaching of subject matter in hour units, and a later one, in which the credit system sis further perfected and becomes consolidated: the value of each course both in high school and in college is now listed in units of credits, and it is definitely stated how many units of credit are required for receiving the respective degrees. The first phase can be dated as of the 1870's and the 1880's; the second as of the next two decades, around the turn of the century.[7]

The college credit hour is based on the same rationale as the high school Carnegie Unit. And the Carnegie Foundation, according to Gerhard, explicitly stated:

> ... in the counting of the fundamental criterion was the amount of time spent on a subject, not the results attained; if, for instance, a year's work in plane geometry would be covered by the way of two weekly hours, the subject should be counted as only 2/5 of a unit.[8]

As the credit hour became the dominant measure of student attainment, four years became the standard requirement for the baccalaureate. Jones and Ortner identified six influences that led to the four year standard; one of which was:

> There was little trust put in final examinations, and external examinations had no tradition in the U.S. Hence, the time spent on the college campus became a convenient measure.[9]

John H. Finley made a parody of the Carnegie Unit as follows:

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[6] Hannah Kreplin. "Credit By Examination: A Review And Analysis Of The Literature," A report of the Ford Foundation sponsored Research Program in University Administration a the University of California, Berkeley, July, 1971, Paper P-20, 1.
[7] Dietrich Gerhard. "The emergence of the credit system in American education considered as a problem of social and intellectual history," American Association of University Professors Bulletin, vol. 41, 1955, 650.
[8] Ibid., 658.
[9] Ibid., 3.

45 minutes make an hour
5 hours make a week
36 hours make a unit
15 units make a matriculant
5 matriculant hours (for one year) make a point of count
60 points or counts make a degree[10]

In his thorough review of the quantification of education by time units, Gerhard observed:

> It is the rigid system of "points" and "units,' organized in a businesslike way, cutting education into pieces which, form now on, though well fitting into the structure of a modern depersonalized business civilization, **became the headache of every true educator** ....[11] (Emphasis added.)

The credit system makes the university a banking system. Gerhard sites Norman Foerster in his 1937 book, T*he American State University*, as likening the pursuit of the American baccalaureate to buying it on the installment plan.

> Once a credit was earned, it was as safe as anything in the world. It would be deposited and indelibly recorded in the registrar's saving bank, **while the substance of the course could be**, if one wished, **happily forgotten**.[12] (Emphasis added.)

Gerhard observed that Abbott L. Lowell, Eliot's successor at Harvard, "spent a great deal of his presidency on undoing the havoc wrought on the college by Eliot's' system of indiscriminate electives" and quotes him as follows:

> **One of the most serious evils of American education in school and college is counting by courses** – the habit of regarding the school or college as an educational savings bank where credits are deposited to make up the balance required for graduation, or for admission to more advanced study.[13] (Emphasis added.)

Beyond administrative issues, it is very difficult to make sense of using time as the one consistent determining factor in granting the baccalaureate.

> In an address to the 1960 annual meeting of the Association of American Colleges, Louis T. Benezet, President of Colorado College, asked, "What sanction, after all, established 120 semester hours? How do we know how many courses a student needs to become educated?" He called attention to John H. Finley's reference to the dean's office as **"A marketplace for the exchange of those negotiable elective tokens by which one through skillful barter might come to his degree and yet be a versatile ignoramus."**[14] (Emphasis added.)

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[10] Brubacher and Rudy, op cit, footnote no. 45 for chapter 12: *The Carnegie Unit, Its Origin, Status, and Trends* (U.S. Department of Health Education, and Welfare, Bulletin No. 7, 1954). In *The American College* (New York, Henry Holt and Co. 1915) p. 111.
[11] Gerhard, op *cit*, 665.
[12] Ibid., 666.
[13] As quoted from Lowell's 1917 essay in his collection of essays entitled *At War with Academic Traditions in America*, Ibid., 667.
[14] Lanora G. Lewis. The Credit System in Colleges and Universities, New Dimensions in Higher Education, Office of Education, Department of Health, Education, and Welfare, no. 9, Nov. 1961, 9.

The requirements for faculty to participate in the Carnegie Foundation's pension fund now known as TIAA/CREF provided the framework for the American baccalaureate throughout the 20th century. The Carnegie Foundation in 1906 stated that a participating college –

> must have **at least six professors** giving their **entire time** to college and university work, a course of **four full years** in liberal arts and sciences, and should require for admission not less than the usual **four years of academic or high school preparation** or it equivalent, in addition to the preacademic or grammar school studies.[15] (Emphasis added.)

These Carnegie eligibility standards, along with the accreditation standards of the state of New York and the regional accrediting associations, set the foundation for the surrogate measures of minimal faculty staffing and time on which we still work today. While these standards are convenient for academic bookkeeping, their empirical validity as predictors of student learning has not been demonstrated.

In 1938, the Carnegie Foundation for the Advancement of Teaching published *The Student and His Knowledge,* a monumental study that included an empirical "Academic Inventory of the Baccalaureate Mind." A subset of the overall study reported how 1669 freshmen, 1322 sophomores, 991 juniors, and 884 seniors from ten Pennsylvania colleges performed in 1930 and 1932 on an eight hour examination that spanned General Culture, General Science, Foreign Literature, Fine Arts, and History and Social Studies. They discovered that time spent in college and age are weakly related with knowledge as measured by this test. In all areas of the test, except Mathematics, the median class scores increased each year, i.e. the sophomore median was higher than the freshman median, the junior median higher than the sophomore median, and the senior median higher than the junior. Just the reverse was true of Mathematics medians. Nevertheless, the middle 50% ranges in all areas overlap greatly. The greatest difference between freshmen and seniors was on the General Culture component; nevertheless, 22% freshmen were above the senior median and 21% of the seniors below the freshman median. In English, about one third of the freshmen are above the senior median and one third of the seniors below the freshman median

Learned and Wood ask their readers to imagine graduating students in terms of their achievement rather than time spent. Then they use one college enrolling 1000 students which had administered the eight hour test to all of its students. They could then compare median scores of freshmen, sophomores, juniors, and seniors. If the graduating class had been determined by those scoring at and

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[15] Quoted by Kreplin, *op cit,* 2 from John S. Brubacher and Willis Rudy. *Higher Education in Transition* (New York: Harper and Brothers, 1958) 343, footnote 17, *Chapter 17.*

above the 80th percentile for the whole student body, the baccalaureate recipients would have been as follows:

25% Seniors
28% Juniors
23% Sophomores
24% Freshmen[16]

In the foreword, Walter A. Jessup observed:

> The study is a landmark in the **passing of the system of units and credits**, which, useful as it was a third of a century ago, is **not good enough for American education today**. ... American higher education appears to be well on it way to another stage of development in which promotion, at least in college, will be based upon "the attainments of minds thoroughly stored and competent.[17] (Emphasis added.)

Despite Learned and Wood's evidence that the time-based credit system does not assure learning, the system of units and credits was not on its way out. To the contrary, it appears to be alive and well, and relatively unquestioned. Given our heedless acceptance of this system, perhaps we need to hear again or for the first time Learned's and Wood's criticisms.

> How is it possible for a student of inferior mentality and with nothing that approaches mastery of any nameable body of knowledge, to be adorned, after four years of ritualistic observances, with the same honors and privileges made noteworthy by his accomplished colleagues? Again if a freshman in college possesses intelligence that places him with the top ten per cent of the seniors, and displays a command of knowledge in every field that is far ahead of the average fourth-year student, why must such a mind still rank as a freshman and remain committed to the same four-year path that is prescribed for a dull or "average" fellow classmate?
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>
> To this curriculum fetish we owe the fact that knowledge in every field is parceled into small packages and is tied up subject to whatever arbitrary requirements (often having nothing to do with knowledge or its use) an instructor may choose to invent and impose uniformly on all bidders for that particular package. **"Credit" for any package depends solely on the verdict of the instructor** – a verdict that must often be reached arbitrarily. Some sequence or other of these **detached packages or "courses"** constitutes the "curriculum" for every student, and it is of the essence of the present scheme that the package remain detached from one another, that they be of standard size, that regardless of a student's mental ability he be not allowed to grasp and carry off more than so many packages a term, and that stipulated number of such packages be claimed and removed during the four years.
>
> **All this becomes in practice an executive, not an intellectual, task**. If the student makes a skilful choice of such packages as are attended by careless or indulgent

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[16] Ibid., Graduation from College X, Chart 93
[17] William S. Learned and Ben D. Wood. *The Student And His Knowledge*, New York: The Carnegie Foundation For The Advancement of Teaching, 1938, xii-xiii.

guardians, the rate of removal can be maintained without serious mental effort[18], although intellectual activity is not excluded.

There is **one appreciable advantage in the plan and that is its administrative convenience** for "checking-up" on young students, and for making the credit exchange between institutions look tangible, however spurious it may be in fact. The extent to which the transfer of credits actually imposes on college officials and induces the illusion that they are dealing in a material commodity is one of the curiosities of out time.

... as long as credit courses are permitted to retain their detached, non-cumulative, "fade-out" character, the student's focused thinking either **misses** or **must attain by itself the chief result which the college should aim to ensure**, namely, those higher levels of philosophical relationship and maturing significance of knowledge that give a true education it unity and conviction of worth.[19] (Emphases added.)

Without Assurance of Integrated or Learning

Why were academics in the first third of the 20th century worried about the inadequacy of using time as the common denominator on which to award the baccalaureate and we are not today? Having seen the benefits of comprehensive examinations, they could see what modularizing the curriculum and assessment would do to fragment the student's education. Since the current system has been in place for 100 years, and since we remain somewhat isolated from the British and European practices, we have not been confronted by other systems.

Nevertheless, the current press for accountability by state governments and for assessment of effectiveness by accrediting associations indicates someone is worrying about higher education's quality assurance. At this point, efforts to deal with the concerns have been *ad hoc* "add-ons" to avoid dealing with the fundamental structural problem of using time and grades from modular courses to determine educational achievement.

Perhaps most importantly, it allows American higher education to award baccalaureates and other degrees to students in the same field who vary enormously in their knowledge and skill. Since we have no way of knowing what students know in a particular field, we avoid knowing the differences in colleges and universities. Because we use credits banked from different courses and even sections with different grading standards and taken at different institutions, and often over protracted periods of time, we can avoid comparing the actual

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[18] A colleague who once held a position a large, urban university that allowed him to know the grading standards in most courses said a student with an 85 IQ could get a baccalaureate if the student allowed him to choose the "right" courses.

[19] Ibid., 321-323.

achievements of student graduating from the same institution in the same field. Some things we would just as well not know.

The concern with the credit system in the early 20th century was that it does not assure that baccalaureate graduates attain, as Learned and Wood put it, "those higher levels of philosophical relationship and maturing significance of knowledge that give a true education its unity and conviction of worth." That I believe remains the question today. While value-added issues intrigue educational researchers, the more direct concern of higher education's stakeholders is, "Do graduates possess the integrated understanding and skills that the baccalaureate should represent?"

Even if major higher education stakeholders and leaders realized that the problem lies in awarding degrees on banked credits, they would be reluctant to attempt changing the academic currency and banking system. Not only does the credit support provide the basis for determining qualifications for degrees, it is also the basis for fiscal management, e.g. student payments, state appropriations, and Federal financial aid. Through it administrators determine faculty work loads. Without it or something like it, American higher education could not manage its enormous migration of students as the Europeans are learning.

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